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ADOPTION OF THE FINAL REPORT OF THE WORKING GROUP TO THE TRADE AND DEVELOPMENT BOARD

Draft final report of the Ad Hoc Working Group on the Interrelationship between Investment and Technology Transfer

PART TWO

Conclusions and recommendations

INTRODUCTION

1. Pursuant to the Cartagena Commitment, the Trade and Development Board by decision 398 (XXXVIII) established the Ad Hoc Working Group on the Interrelationship between Investment and Technology Transfer. At its first session, the Working Group adopted its Work Programme defining broadly the objectives of the exercise, the specific issues to be examined and discussed, as well as the broad lines on how the work was to be organized and carried out. The Group identified the following three main issues for examination and discussion:

- Investment flows, transfer of technology and competitiveness;

- Technological capability-building in developing countries, particularly the least developed countries, and in countries undergoing the process of transition to market economy;

- Transfer and development of environmentally sound technologies.

METHOD OF WORK AND DELIBERATIONS

2. The Ad Hoc Working Group on the Interrelationship between Investment and Technology Transfer held a total of three sessions within a period of 15 months (January 1993 to March 1994), totalling 15 working days.

3. The Group comprised experts from Governments, academia and the enterprise sector. In line with the nature of the Group, most of the deliberations were informal. On one specific issue - environmentally sound technologies - the Working Group drew on the results of a Workshop organized by the UNCTAD secretariat and the Government of Norway, in Oslo, from 13 to 15 October 1993 (UNCTAD/ITD/TEC/13).

4. A key component of the work of the Working Group was the presentation of 19 case studies specially prepared by member Governments for the consideration of the Group. The coverage and contents of the case studies enabled the Group to have an overview of the problems, issues and expectations of countries at different stages of development. The full report of the activities of the Ad Hoc Working Group on the Interrelationship between Investment and Technology Transfer is to be found in Part One. 1/

5. At the request of the Working Group, the secretariat prepared a number of background materials that assisted the Group in carrying out its mandate. In this connection, the Group recognizes the special contributions made by countries which prepared case studies and other Governments that contributed to the success of the exercise. A number of institutions also contributed to the work of the Ad Hoc Working Group in the form of expert advice provided during the deliberations.

6. During the course of its deliberations, the Group referred to different, though interrelated, issues which include:

* the role of the state;
* policies to promote technology and investment flows and technological innovation;
* human resources development and institution-building;
* mechanisms of technology transfer;
* intellectual property protection;
* factors affecting competitiveness;
* the role of SMEs.

1/ For Part One of the draft Final Report of the Working Group see document TD/B/WG.5/L.6 and Add.1 and 2.

7. The Ad Hoc Working Group has carried out its work programme. The Group does not put forward any prescriptive solutions. However, the Working Group does offer for the consideration of member Governments of UNCTAD the following findings and conclusions, which include policy options and recommendations.

MAIN FINDINGS

8. The world today is very different from that which prevailed two to three decades ago when an inward-oriented and state-led industrialization strategy was the dominant approach adopted by many countries. Increasing liberalization trends, adoption and implementation of structural adjustment programmes, changes in the international division of labour and greater cooperative arrangements among enterprises have, in a period of rapid technological change, created a new setting for investment and technology flows.

9. Technology is vital for achieving economic development and sustaining competitiveness. The process of gaining technological capability, however, is not instantaneous, costless or automatic, even if the technology is well-diffused elsewhere. Apart from physical inputs, it calls for various new skills, technical information and services, contract research facilities, interactions with other firms, equipment suppliers, standards' bodies, and so on. The setting up of this dense network of cooperation requires the development of special skills and a favourable economic, institutional and legal environment.

10. All countries, particularly developing countries, can benefit from imported technologies to establish and strengthen local technological capability, including, *inter alia*, the ability to acquire, absorb and adapt new and emerging technology, and to improve their international competitiveness. These technologies are obtained largely through foreign direct investment (FDI), including joint ventures and capital goods imports. However, in recent years, other channels of transferring technology such as licensing, management contracts, subcontracting and franchising have also grown in importance, including those within the framework of mutually respectful strategic technological partnerships. The efficiency of use of the imported technology and its contribution to the upgrading of a local technological base vary in accordance with the complexity of the technology involved and with existing capabilities.

11. FDI and technology transfer based on equality and mutual benefit are favourable to both sides, namely technology suppliers and recipients. Therefore, the importance of technology transfer lies not only in the benefit

accruing to both sides, but also the overall development of the world economy, and particularly that of the developing countries.

12. The relationship between foreign investment flows and the building of technological capacities runs in both directions. While investment flows present the opportunity for acquiring and absorbing technology, it has become apparent that investment is attracted most strongly to those countries that have adopted measures to strengthen their domestic technological capability and create an overall policy framework conducive to innovation, investment in infrastructure, intellectual property protection, human capital formation and a stable macroeconomic and regulatory environment. Other factors such as market size, natural resource endowment and factor costs also affect locational decisions of firms. At the same time, FDI and any transfer of technology therein has clearly been a highly convenient medium for the provision of training opportunities and positive structural adjustment by developed and more advanced developing countries in addition to R&D cooperation schemes for the benefit of the recipient countries.

13. However, government efforts have not necessarily elicited the desired effect in terms of additional investment and technology flows by firms. This is especially so in cases where temporary bottlenecks and uncertainties resulting from structural adjustment changes have had, at least in the short-term, an influence on investment flows and thereby on innovation and transfer of technology.

14. In most developing countries, the process of technological capability-building may be hampered by, *inter alia*, declining rates of investment, misallocation of resources, external imbalances, lack of diverse and sophisticated skills and weak linkages between domestic R&D institutes (particularly in the public sector) and enterprises as well as unfavourable external factors.

15. In this context, the problems faced, particularly by the least developed countries, need special attention. For these countries, new policy approaches which recognize the role of market mechanisms may be necessary to tackle the constraints associated with the acquisition and building of technological capabilities.

16. The problems faced by developing countries and countries in transition also require special consideration, particularly with respect to their need to formulate appropriate strategies on FDI and transfer of technology.

17. In developing technological capabilities, it is essential to create and improve those capabilities that are consistent with economic efficiency and building of international competitiveness. In a period of rapid technological change, competitiveness depends both on the acquisition of new knowledge and organizational capability and on cost factors. This involves a shift from the focus on R&D as an end in itself to R&D as a means for facilitating the assimilation of imported technologies, acquiring better methods of production, increasing efficiency, strengthening skills, developing endogenous technologies and new and improved products as well as identifying new market niches.

18. It also involves the setting of adequate industrial standards, establishment of marketing and distribution networks and the creation of a managerial and organizational framework that fosters sensitivity to customer's needs, dependable service and a quick response to shifting demand patterns. Increasingly, keeping pace with technological change means inter-firm cooperation and the formation of strategic alliances as a means of sharing capabilities and distributing the burden of risk in investing in innovations.

19. Technology policy needs also to be coordinated and synchronized with industrial, investment and trade policies. Overall, the policy direction should be geared to policies that are more market-oriented, open to trade and foreign investment and that encourage linkages between R&D institutes and enterprises.

20. Similar findings were observed in the Oslo Workshop on environmentally sound technologies (ESTs) which emphasized the key role played by enterprises in the generation and transfer of ESTs and in improving environmental conditions. The contribution of private enterprises to these objectives is heavily dependent, however, on Governments providing the necessary framework to create demand for such technologies, notably in the form of laws and regulations on environmental protection, as well as measures aimed at internalizing environmental costs and other economic incentives. In view of the benefits inherent in ESTs, there is also a strong case for Governments to engage actively in promoting the generation and dissemination of ESTs, and also to strengthen international cooperation to that end.

21. Any meaningful exploration of investment and technology-related issues should be grounded on a clear grasp of prevailing conditions, the underlying trends and salient policy issues. However, there is a lack of appropriate science and technology indicators that may be relevant for analyzing technological trends and assessing the impact on developing countries.

GENERAL CONCLUSIONS

22. Efforts towards promoting technology transfer and technological capability-building in developing countries and countries in transition need to be coupled with a market-based trade and investment policy and pricing system, and with a stable macroeconomic environment for business activity, conducive to overall economic growth and employment. Additional elements of that framework are Trade Related Investment Measures (TRIMs) - consistent investment régimes, as well as bilateral and multilateral agreements. In order to maximize the efficient use of technology, technology transfer must take place, particularly in the case of developing countries, either as part of international commerce, or included within bilateral or multilateral assistance programmes.

23. With respect to the least developed countries, industrialized countries, private enterprises, and international institutions need to keep in mind the need to improve the understanding of the policy approaches necessary to foster technological capability-building in these countries. While UNCTAD, United Nations agencies and other institutions dealing with development issues, academia, and the private sector will play an important role in developing this understanding, the support of the international community will be vital to this effort.

24. Qualified human resources, especially skilled personnel, are critical to the development of technological capability. For this purpose, countries need to pay more attention to continuous skill upgrading, including terminology-based knowledge transfer, and organize their institutional set-up as well as their educational and training system in line with the needs and requirements of the productive sector.

25. Closer linkages between R&D activities and the productive sector must also be established. A strategy, therefore, is deemed to be necessary for mobilizing and effectively utilizing resources for the commercialization of R&D results and for responding better to the needs of the productive sector.

26. While the role of government remains vital in the process of building technological capabilities, it is increasingly recognized that there is a need for closer collaboration between business, academia and government in order to take into account the motivations and needs of the productive sector in the formulation of policies. However, differences in levels of economic and technological development may call for different sets of policy mix and approaches toward capacity-building.

27. In the post-Uruguay Round period, intellectual property rights protection is deemed to constitute an important component of an environment conducive to international transfer of technology, including FDI. Further studies and technical assistance, in collaboration with the World Trade Organization (WTO) and the World Intellectual Property Organization (WIPO) may be needed in order to elucidate the relationship between intellectual property rights and transfer of technology, particularly for the implementation of the GATT Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs), taking into account the characteristics of contemporary knowledge, inventions and ownership.

28. Given the role of enterprises in the development and use of technology and results of scientific research, any discussion in international forums on science and technology policy cannot be separated from the role of enterprises which are important vehicles for technical change and technological capability-building.

29. Successful FDI and transfer of technology cannot be separated from industrialized countries' active dedication to and participation in helping developing countries, and the least developed countries in particular, in their acquisition and enhancement of technology capabilities through the means of FDI, technology licensing and expert advice.

RECOMMENDATIONS

30. The Ad Hoc Working Group on the Interrelationship between Investment and Technology Transfer recommends that UNCTAD's work in the interrelated areas of investment, technology and international competitiveness be focused on specific issues so as to better respond to the changing concerns and needs of Member States, and that emphasis be placed on the need for flexibility in the method of work which could, *inter alia*, include intergovernmental deliberations, technical assistance activities, seminars, workshops and conferences. The UNCTAD secretariat is encouraged to work closely with governments, the enterprise sector and other organizations at the national, regional and international levels.

31. The Ad Hoc Working Group, in the light of its relevant findings and conclusions, recommends that the following specific actions be considered by UNCTAD in coordination with the appropriate international organizations:

(a) Undertake a project, within UNCTAD, specially designed to foster the technological capability-building in the least developed countries.

The Secretary-General of UNCTAD is requested to implement this project jointly with interested least developed countries and by

seeking expertise and support of the international community, and to report the results of this project to the appropriate intergovernmental machinery of UNCTAD;

(b) organize a world dialogue among governments, enterprises and the academic sector for the purpose of exchanging views and formulating proposals for technological cooperation;

(c) assist developing countries, in particular the least developed countries, in fostering entrepreneurship through the transfer of technology and managerial skills, and developing the framework and mechanisms for technology partnerships between enterprises, with special attention to small and medium-sized enterprises and their representative organizations;

(d) examine measures, in particular in the field of training and education, aimed at engaging more fully the creative potential of small- and medium-sized enterprises in the generation and dissemination of environmentally sound technologies, through, *inter alia*, building networks and other channels of information.

32. The Ad Hoc Working Group recommends the following issues for further analysis and consideration by UNCTAD in coordination with the appropriate international organizations:

(a) ways and means to enhance policies and mechanisms that have an impact on investment and technology flows;

(b) the role of incentives and other inducements in stimulating investment that contribute to strengthening technological capabilities of the technology-recipient countries;

(c) strengthening of networking arrangements, through investment and other means, among enterprises in countries at different stages of development for the promotion of innovation and productivity growth in developing countries;

(d) ways and means to implement the provisions of the GATT Agreement on TRIPs in coordination with WTO and WIPO;

(e) enhancing activities on the interrelationship between environmentally sound technologies, trade and development.